

**Travis A. O'Brien**  
**Curriculum Vitae**

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**Objective:** *A career that combines my scientific creativity, leadership, and teaching abilities*

**Education:**

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University of California, Santa Cruz	Ph. D. Earth Science 2008-2011
Dissertation: <i>The Recent Past and Possible Future Decline of California Coastal Fog</i>	
Advisors: Professor Lisa C. Sloan Professor Patrick Y. Chuang	
University of California, Santa Cruz	M. S. Earth Science 2006-2008
Thesis: <i>How Did Airborne Dust Affect North American Climate During the 1930's Dust Bowl?</i>	
Advisor: Professor Lisa C. Sloan	
University of California, Santa Cruz	B. S. Physics 2001-2005
Thesis: <i>Anisotropic Local Distortion of <math>La_{1.2}Sr_{1.8}Mn_2O_7</math> Through the Ferromagnetic Transition Temperature</i>	
Advisor: Professor Frank Bridges	

**Positions Held:**

2014-present	Research Scientist, Lawrence Berkeley National Lab
2011-2013	Geological Postdoctoral Fellow, Lawrence Berkeley National Lab. <i>Advisor: Professor William D. Collins</i>
2010	Associate in Atmospheric Sciences, UC Davis
2009-2011	Ph.D Candidate, UC Santa Cruz
2006-2009	Graduate Student Researcher, UC Santa Cruz
2006	Research Consultant, Los Alamos National Laboratory
2004-2005	Research Assistant, UC Santa Cruz
2004	Student Intern, Stanford Linear Accelerator

## Refereed Publications:

Güttler, I., Branković, C., **O'Brien, T. A.**, Coppola, E., Grisogono, B., Giorgi, F., [Sensitivity of the regional climate model RegCM4.2 to planetary boundary layer parameterisation](#), *Clim. Dyn.*, Available Online (2013). doi:10.1007/s00382-013-2003-6

**O'Brien, T. A.**, Collins, W. D., Li, F., Rauscher, S. A., Ringler, T. D., Taylor, M., Hagos, S. M., Leung, L. R., [Observed Scaling in Clouds and Precipitation and Scale Incognizance in Regional to Global Atmospheric Models](#), *J. Clim.*, 26, 9313—9333 (2013). doi:10.1175/JCLI-D-13-00005.1

**O'Brien, T. A.**, Sloan, L. C., Chuang, P. Y., Faloona, I. C., [Multidecadal simulation of coastal fog with a regional climate model](#). *Clim. Dyn.*, 40, 2801—2812 (2013). doi:10.1007/s00382-012-1486-x

**O'Brien, T. A.**, Chuang, P. Y., Sloan, L. C., Faloona, I. C., Rossiter, D. L., [Coupling a new turbulence parametrization to RegCM adds realistic stratocumulus clouds](#). *Geosci. Model Dev.*, 5, 989-1008 (2012). doi:10.5194/gmd-5-989-2012

Giorgi, F., Coppola, E., Solmon, F., Mariotti, L., Sylla, M., Bi, X., Elguindi, N., Diro, G. T., Nair, V., Giuliani, G., Cozzini, S., Guettler, I., **O'Brien, T. A.**, Tawfik, A., Shalaby, A., Zakey, A. S., Steiner, A., Stordal, F., Sloan, L., Brankovic, C. [RegCM4: model description and preliminary tests over multiple CORDEX domains](#). *Clim. Res.*, 52, 7 (2012). doi:10.3354/cr01018

**O'Brien, T. A.**, Sloan, L. C., Snyder, M. A. [Can ensembles of regional climate model simulations improve results from sensitivity studies?](#) *Clim. Dyn.*, 37, 1111 (2011). doi:10.1007/s00382-010-0900-5

Miller, N. L., Jin, J. Schlegel, N. J., Snyder, M. A., **O'Brien, T.**, Sloan, L. C., Duffy, P. B., Hidalgo, H., Kanamaru, M., Yoshimura, K., and Cayan, D. R. (2009) [An analysis of simulated California climate using multiple dynamical and statistical techniques](#). *California Energy Commission report CEC-500-2009-017-F*, <http://www.energy.ca.gov/2009publications/CEC-500-2009-017/CEC-500-2009-017-F.PDF>

Bridges, F., Downs, C., **O'Brien, T.**, Jeong, Il-K, and Kimura, T. [Limitations on the extent of off-center displacements in TbMnO<sub>3</sub> from EXAFS measurements](#). *Phys. Rev. B*, 76, 092109 (2007). doi:10.1103/PhysRevB.76.092109

**O'Brien, T. A.**, Bridges, F., Downward, L., Mitchell, J. F., Zheng, H., [Evidence for magnetic “dimerons” in the anisotropic bilayer system La<sub>1.2</sub>Sr<sub>1.8</sub>Mn<sub>2</sub>O<sub>7</sub>: an EXAFS study](#). *Phys. Rev. B*, 75, 064417 (2007). doi:10.1103/PhysRevB.75.064417

## Invited Talks:

**O'Brien, T. A.**, Collins, W. D., Li, F., Rauscher, S. A., Ringler, T. D., Taylor, M., Hagos, S. M., Leung, L. R., [Observed Scaling in Clouds and Precipitation and Scale Incognizance in Regional to Global Atmospheric Models](#). *Pacific Northwest National Laboratory Climate Physics Seminar, 1 February, 2013*. Abstract unavailable.

**O'Brien, T. A.**, Sloan, L. C., Chuang, P. Y., Faloona, I. C., Collins, W. D. [The Recent Decline of Coastal Fog and the Drying of the Coastal Boundary Layer](#). *Oregon State University Physics of Oceans and Atmospheres Seminar Series, 29 January, 2013*. Abstract unavailable.

**O'Brien, T. A.**, Sloan, L. C., Chuang, P. Y., Faloona, I. C., [Changes in California Coastal Dynamics over the Last 100 Years](#). *ICTP RegCM Workshop, 2012*, Abstract unavailable.

**O'Brien, T. A.**, Sloan, L. C., Chuang, P. Y., and Faloona, I. C., [What has caused the long-term decline in California coastal fog?](#) *UC Davis Atmospheric Sciences Seminar, 2 May, 2011*. Abstract unavailable.

## 5 Recent Public Presentations:

**O'Brien, T. A.**, Collins, W. D., Rauscher, S. A., Ringler, T. D., Fractal behavior drives resolution dependent vertical velocity fields. AGU Fall Meeting, 2013, NG41A-1659, Abstract available online.

**O'Brien, T. A.**, Collins, W. D., Li, F., Rauscher, S. A., Ringler, T. D., Taylor, M., Hagos, S. M., Leung, L. R., Observed Scaling in Clouds and Precipitation and Scale Incognizance in Regional to Global Atmospheric Models. *CESM Atmosphere Working Group Meeting, 13 February, 2013*. Presentation available online.

**O'Brien, T. A.**, Sloan, L. C., Chuang, P. Y., Faloona, I. C., Collins, W. D. The Recent Decline of Coastal Fog and the Drying of the Coastal Boundary Layer. *Pacific Northwest National Laboratory Climate Physics Seminar, 31 January, 2013*. Abstract unavailable.

**O'Brien, T. A.**, Collins, W. D., Li, F., Rauscher, S. A., Ringler, T. D., Taylor, M., Hagos, S. M., Leung, L. R., Observed Scaling in Clouds and Precipitation and Scale Incognizance in Regional to Global Atmospheric Models. AGU Fall Meeting, 2012, A43G-0233, Abstract available online.

**O'Brien, T. A.**, Collins, W. D., Sloan, L. C., Chuang, P. Y., Faloona, I. C., Sea Surface Temperatures Drive Fog Variability but not the Long-term Trend. Eastern Pacific Ocean Conference, 2012, Abstract available online.

## Current and Past Support:

01/14 - 01/15	PI, NERSC Initiative for Scientific Exploration <i>2.0M CPU hours (\$280K market value)</i>	CALibrated and Systematic Characterization, Attribution, and Detection of Extremes (CASCADE)
10/13 - 10/16	CO-I, DOE Scientific Focus Area <i>\$2.5M/year</i>	CALibrated and Systematic Characterization, Attribution, and Detection of Extremes (CASCADE)
06/12	CO-I, NASA-ROSES PMM 2012, <i>Unfunded</i>	Investigation into the use of TRMM and GPM data to constrain and develop scale-aware model parameterizations to improve model simulations of extreme precipitation
05/11	PI, NSF AGS Postdoctoral Fellowship, <i>Unfunded</i>	AGS-PRF: Developing and Applying a Model of Coastal Fog During the Last Glacial Maximum
09/08 - 09/10	UCSC Science, Technology, Engineering, Policy, and Society (STEPS) Institute, <i>\$1,000</i>	A New Model for the Future of Fog on California's Coast
04/07 - 04/08	UCSC STEPS Institute, <i>\$1,500</i>	A Neural Network Model of Agricultural Response to Local Climate
03/07	UCSC Center for the Dynamics of the Land-Sea Interface Institute, <i>\$300</i>	Travel grant to present at AGU Joint Meeting, 2007

## Other Public Presentations:

**O'Brien, T. A.**, Sloan, L. C., Chuang, P. Y., Faloona, I. C., Collins, W. D., Simulating the Recent Decline in Coastal Fog. California Climate Change & Water Symposium, 2012, Abstract unavailable.

**O'Brien, T. A.**, Collins, W. D., Li, F., Rauscher, S. A., Ringler, T. D., Taylor, M., Hagos, S. M., Leung, L. R., Observed Scaling in Clouds and Precipitation and Scale Incognizance in Regional to Global Atmospheric Models. *CESM Workshop, 2012*. Abstract unavailable.

Collins, W.D., **O'Brien, T.A.**, Li, F., Observational constraints on scale-awareness: Scale-incognizant parameterizations in the Community Atmosphere Model. *Frontiers in Computational Physics, 2012, O35*. Abstract unavailable.

**O'Brien, T. A.**, Collins, W. D., Li, F., Observational constraints on scale-awareness: Illumination of a scale-incognizant stratiform parameterization in CAM. *BASC Symposium, 2012*, Abstract unavailable

**O'Brien, T. A.**, Sloan, L. C., Chuang, P. Y., Faloona, I. C., Simulating Coastal Fog with a Regional Climate Model. *AGU Fall Meeting, 2011*, A31K-05, Abstract available online.

**O'Brien, T. A.**, Sloan, L. C., Chuang, P. Y., Faloona, I. C., Regional Simulation of Marine Stratus and Fog. *UC Davis Symposium on Sea and Coast, 14 September, 2010*, Abstract unavailable.

**O'Brien, T. A.**, Sloan, L. C., Chuang, P. Y., Faloona, I. C., Does a new boundary layer model improve simulation of coastal environments in RegCM3? *ICTP RegCM Workshop, 2010*, Abstract unavailable.

Güttler, I. and **O'Brien, T. A.**, Coupling with the UW PBL Scheme. *ICTP RegCM Workshop, 2012*, Abstract unavailable

Snyder, M. A. and **O'Brien, T. A.**, Regional climate model ensemble techniques: Towards higher spatial resolution probabilistic climate scenarios. *AGU Fall Meeting, 2010*, GC42A-05, Abstract online.

Sloan, L. C., Graves, D., Snyder, M. A., and **O'Brien, T. A.** (2010) Climate Change and Wine: Observations, Impacts, and Implications. *Seymour Center Lecture Series, 19 September, 2010*, Abstract unavailable.

**O'Brien, T. A.**, Sloan, L. C., Snyder, M. A., Can ensembles of regional climate model simulations improve results from sensitivity studies? *BASC Symposium, 2010*, Abstract unavailable.

**O'Brien, T. A.**, Hutchison, K. H., Sloan, L. C., Solmon, F., Application of ICTP RegCM3's New Dust Model to Modern N. America: Challenges and Questions. *AGU Fall Meeting 2008*, GC53A-0688, Abstract available online.

Hutchison, K. H., **O'Brien, T. A.**, Sloan, L. C., The Regional Impact of Current and Future Dust Levels on Climate in Western North America. *AGU Fall Meeting 2008*, GC53A-0693, Abstract online.

Snyder, M. A., **O'Brien, T. A.**, Sloan, L. C., Future Changes in Surface Winds in the Western U.S. due to Climate Change. *AGU Fall Meeting 2008*, GC53B-0721, Abstract available online.

**O'Brien, T. A.**, Solmon, F., Sloan, L. C., Snyder, M. A., Airborne Dust Modified the North American Climate During the 1930's Dust Bowl. *AGU Joint Assembly 2007*, A52A-03, Abstract with programs.

**O'Brien, T. A.**, Downward, L. M., Larson, D., Downs, C., Bridges, F., Mitchell, J. F., Zheng, H., Evidence for Magnetic Dimerons in the Anisotropic Bilayer System La<sub>1.2</sub>Sr<sub>1.8</sub>Mn<sub>2</sub>O<sub>7</sub>: an EXAFS study. *SSRL Users' Meeting 2005*, Poster Session, Abstract with Programs.

**O'Brien, T. A.**, Downward, L. M., Larson, D., Downs, C., Bridges, F., Mitchell, J. F., Zheng, H., Anisotropic Local Distortion of La<sub>1.2</sub>Sr<sub>1.8</sub>Mn<sub>2</sub>O<sub>7</sub> Through the Ferromagnetic Transition Temperature. *Bull. Am. Phys. Soc. March Meeting 2005*, N43.00003, Abstract online.

**O'Brien, T. A.**, Downward, L. M., Larson, D., Downs, C., Bridges, F., Mitchell, J. F., Zheng, H., Anisotropic Local Distortion of La<sub>1.2</sub>Sr<sub>1.8</sub>Mn<sub>2</sub>O<sub>7</sub> Through the Ferromagnetic Transition Temperature. *SSRL Users' Meeting 2004*, Poster Session, Abstract with programs.

**Selected Synergistic Activities:**

- Invited participant in NSF-funded “Expert Witness Training Academy,” 2013
- Invited participant in interdisciplinary “Fog as a System” workshop, 2013
- Taught a “LaTeX for Science” course, LBNL Climate Department, 2013
- Weekly seminar co-organizer, LBNL Climate Department, 2012—2013
- Session co-convener for AGU Fall Meetings:
  - A033 (2013): Fog: Atmosphere, biosphere, land, and ocean interactions
  - A025 (2012): Coastal Fog: Atmosphere, Biosphere, Ocean, and Land Interactions
  - A066 (2012): Scale Dependence, Scale Invariance, and Scale Aware Parameterization
  - GC15 (2010): Coastal Climates in a Changing World
  - IN11D (2009): Management and Dissemination of Earth and Space Science Models
- Participant and Lab Instructor, ICTP RegCM Workshop and Tutorial, 2010 and 2012
- Associate (volunteer) developer, ICTP RegCM
- Participant, 2007 and 2008 Climate Leadership Summit, Santa Cruz, CA

**Teaching Experience:**

Instructor	—	LaTeX for Science	LBNL Summer 2013	
Teaching Assistant	Earth Sciences 110B	Earth as a Chemical System	UCSC	Winter 2011
Associate in Atmospheric Sciences	Atmospheric Sciences 120	Atmospheric Thermodynamics and Cloud Physics	UCD	Fall 2010
Teaching Assistant	Earth Sciences 80C	Introduction to Weather and Climate	UCSC	Fall 2009
Teaching Assistant	Earth Sciences 110B	Earth as a Chemical System	UCSC	Winter 2009
Teaching Assistant	Earth Sciences 10	California Geology	UCSC	Fall 2007
Teaching Assistant	Earth Sciences 80D	Earth Sciences in the Cinema	UCSC	Spring 2007